USB Bus Interface Chip CH372G

Datasheet (III): Serial Bus Parallel Mode

Version: 1

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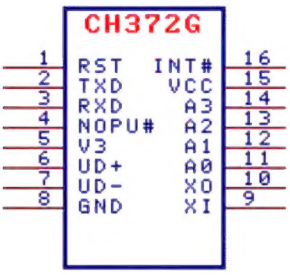
1. Package and Pins



Package	Width of Plastic		Pitch of Pin		Instruction of Package	Ordering Information
SOP-16	3.9mm	150mil	1.27mm	50mil	Standard 16-pin patch	CH372G

Pin No.	Pin Name	Pin Type	Pin description
15	VCC	Power	Positive power input, an external 0.1uF power decoupling capacitor is required.
8	GND	Power	Common ground, shall be connected to the ground wire of the USB bus
5	V3	Power	Connected to the VCC input external power at the supply voltage of 3.3V The external capacity is 0.1uF decoupling capacitor at 5V supply voltage
9	XI	Input	Input terminal of the crystal oscillator, required to be connected to an external crystal and oscillation capacitor. For the built-in clock mode, XI shall be connected to GND
10	XO	Output	Inverted output terminal of the crystal oscillator, required to be connected to an external crystal and oscillation capacitor. For the built-in clock mode, XO shall be suspended
6	UD+	USB signal	USB bus D+data line
7	UD-	USB signal	USB bus D - data line
14～11	A3～A0	Input	4-bit address line input, for setting the address 0A0H -0AFH of each chip, Used to distinguish 16 chips on the bus, built-in weak pull-up resistor
16	INT#	Output	Interrupt request signal output, active low
2	TXD	Output	Serial data output, built-in weak pull-up resistor
3	RXD	Input	Serial data input, built-in weak pull-up resistor
1	RST	Input	External reset input, active high, built-in pull-down

			resistor
4	NOPU#	Input	Disable pull-up resistor, active low, built-in weak pull-up resistor. Each input pin has a pull-up resistor by default. When NOPU# is set at low level, A3-A0, TXD and RXD and NOPU# pull-up resistor are turned off

2. Description of Serial Bus Parallel Mode

The serial port connection is in bus parallel mode. All RXDs of CH372G are connected to the transmitter of the main MCU after being connected in parallel, and all TXDs of CH372G are connected to the receiver of the main MCU after being connected in parallel. The serial port data is 8-bit and has no check bit.

The serial port operation process is the same as the original CH372 parallel port mode. The main difference in the data format is that the serial port shall transmit one more addressing lead byte before the original CH372 parallel port data to replace the chip selection in the original parallel port mode. Each CH372G sets its addresses (starting address 0A0H) through 4 pins A3-A0, and the addresses 0A0H-0AFH correspond to one of sixteen CH372G chips in total from 0 to 15. In addition, the address 05AH is the broadcast address. All CH372G chips will receive and execute. Note that the operation commands with returned data shall not be transmitted by broadcast when there are multiple CH372G chips connected in parallel.

Order: [leading address: 0xA0-0xAF or 0x5A broadcast], [original CH372 parallel port command], [optional original CH372 data].

3. Additional Commands in Serial Port Mode

Code	Command Name	Input Data	Output Data	Command Purpose
02H	SET_BAUDRATE	Frequency division coefficient 03H	(Wait for 200uS) Operation status	Set serial communication baud rate
		Frequency division constant		
04H	SET_USB_SPEED	Bus speed		Set USB bus speed

3.1. Command SET_BAUDRATE

This command is used to set the serial communication baud rate of CH372G. The default communication baud rate is 1Mbps after CH372G reset. If MCU supports high communication speed, the serial communication baud rate can be dynamically regulated through this command. The serial port communication baud rate is set within 100uS. After completion, CH372G outputs the operation state at the newly set communication baud rate. Therefore, MCU shall adjust its own communication baud rate in time after sending the command. The command requires the input of two data, namely, baud rate frequency division coefficient and frequency division constant.

Frequency division coefficient	Frequency division constant	Communication baud rate (bps)	Error
03H	F4H	500000	0%
03H	F8H	750000	0%

03H	FAH	1000000	0%
03H	FBH	1200000	0%
03H	FCH	1500000	0%
03H	FDH	2000000	0%
03H	FEH	3000000	0%

3.2. Command SET_USB_SPEED

This command is used to set the USB bus speed and must be transmitted immediately after the command SET_USB_MODE is completed. This command needs the input of 1 data to select the USB bus speed. 00H corresponds to 12Mbps full speed mode, and 02H corresponds to 1.5Mbps low speed mode. The USB bus speed of CH372G is 12Mbps full speed by default, and will be restored to 12Mbps full speed mode after the command SET_USB_MODE is executed to set USB working mode.